



**FACULTY OF MANAGEMENT
JANUARY 2015 SPECIAL EXAMINATION**

DEPARTMENT OF APPLIED INFORMATION SYSTEMS

MODULE : COMMUNICATION NETWORKS 2B

CODE : CMN02B1/CMN22B2

DATE : JANUARY 2015 EXAMINATION

DURATION : 2 HOURS

TIME :

TOTAL MARKS : 100

EXAMINER : TINO MUSEBA

EXTERNAL MODERATOR: T.ZUVA

NUMBER OF PAGES : 3 PAGES

INSTRUCTIONS TO CANDIDATES:

- Read the questions carefully
- Answer all questions
- Number your answers clearly
- Write neatly and legibly
- Structure your answers by using appropriate headings and sub-headings
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

QUESTION ONE

- 1.1.** In a typical Network setup, Host A knows the IP address of Host B, but not the MAC address. Explain how Host A gets to know the MAC address of Host B for it to be able to send data frames. **[10]**
- 1.2.** Data collision can be avoided in an Ethernet segment by the use of CSMA/CD. Explain how CSMA/CD avoids data collision in a bus topology **[10]**

QUESTION TWO

- 2.1.** What is meant by the term Efficiency? State and describe four factor used to measure Efficiency **[5]**
- 2.2.** Explain the term “Congestion“. Describe how the RED technique handles congestion **[5]**
- 2.3.** What is a router? Discuss four (4) disadvantages of a router **[5]**
- 2.4.** Describe how a collapsed backbone network is formed? Discuss three disadvantages of a collapsed backbone network. **[5]**

QUESTION THREE

- 3.1.** State and describe four main factors to consider when selecting appropriate LAN technology to design a network **[8]**
- 3.2.** State seven pieces of information contained in an Ethernet frame. **[7]**
- 3.3.** State and describe two networking issues addressed by the use of Frames **[5]**

QUESTION FOUR

- 4.1.** Discuss five (5) disadvantages of the Routing Information Protocol (RIP) **[5]**
- 4.2.** Discuss five (5) design goals of the Interior Gateway Routing Protocol (IGRP) **[5]**
- 4.3.** Discuss the differences between dynamic routing and static routing **[5]**
- 4.4.** Explain the term 'Redundancy' in network terms. Discuss three benefits of redundancy **[5]**

QUESTION FIVE

- 5.1.** Discuss five advantages of optic fibre over copper media **[10]**
- 5.2.** A local company has engaged you as its network administrator and want to design a LAN network from scratch. The building that is going to house the network consists of three storeys. Advise the company management as to which topology is suitable and the security measures you are likely to implement so that the network is secured. **[10]**